

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application.

**Listing of Claims:**

1. (previously presented) A system for computing circuit paths between a first node and a second node within a network, the network including a plurality of elements, the system having at least one computer-readable medium storing computer-executable instructions and comprising:

a first set of computer-executable instructions creating a primary circuit path from the first node to the second node, the primary circuit path including at least one protected link selected from the plurality of elements, wherein the first set of computer-executable instructions is arranged to include the at least one protected link in a protectable segment of the primary circuit path; and

a second set of computer-executable instructions creating an alternate circuit path from the first node to the second node, wherein the alternate circuit path is arranged to protect at least the protectable segment of the primary circuit path,

wherein the second set of computer executable instructions include:

a first subset of computer-executable instructions assigning a cost to at least one protected link;

a second subset of computer-executable instruction assigning costs associated to each link of a plurality of links included in the plurality of elements, wherein the cost assigned to the at least one protected link is lower than the costs associated with each link of the plurality of links; and

a third subset of computer-executable instruction considering costs associated with the plurality of links and the cost associated with the at least one protected link to determine the alternate circuit path.

2. (previously presented) The system as recited in claim 1 wherein the at least one protected link is a link with 1+1 protection.

3. (previously presented) The system as recited in claim 1 wherein the second set of computer-executable instructions is arranged to create the alternate circuit path using the at least one protected link.

4. (previously presented) The system as recited in claim 3 wherein the at least one protected link is a link with 1+1 protection.

5. (previously presented) The system as recited in claim 1 further including a third set of computer-executable instructions which enable at least one element of the plurality of elements which is required in the alternate circuit path to be specified, wherein the second set of computer-executable instructions is arranged to create the alternate circuit path using at least one element of the plurality of elements which is required.

6. (previously presented) The system as recited in claim 5 wherein at least one element of the plurality of elements which is required in the alternate circuit path is a third node which is associated with a beginning of the at least one protected link and a fourth node which is associated with the end of the at least one protected link.

7. (previously presented) The system as recited in claim 1 wherein the system is associated with the first node.

8. (previously presented) The system as recited in claim 1 further including a fourth set of computer-executable instructions arranged to implement the primary circuit path and the alternate circuit path.

9. (previously presented) The system as recited in claim 1 wherein the primary circuit path is a lowest cost circuit path between the first node and the second node and the alternate circuit path is a lowest cost circuit path between the first node and the second node which protects the primary circuit path.

10. (cancelled)

11. (currently amended) A method for computing an overall circuit path within a network, the overall circuit path including a primary path and an alternate path, the primary path being defined from a start node to a destination node, the method comprising:

determining the primary path using a routing algorithm, wherein the primary path includes a protectable segment which has a first line-protected link; and

creating the alternate path using the routing algorithm, wherein creating the alternate path includes creating the alternate path from the start node to the end node, the alternate path arranged to protect at least the protectable segment which includes the first line-protected link;

wherein the primary path is the lowest cost path between the start node and the destination node, and

wherein creating the alternate path using the routing algorithm includes considering costs associated with a plurality of links associated with the network and a cost associated with the first line-protected link, the cost associated with the first line-protected link being lower than the costs associated with the plurality of links.

12. (original) The method of claim 11 wherein the protectable segment is a path protected segment that includes the first line-protected link and the alternate path is arranged to protect the path-protected segment.

13. (previously presented) The method of claim 11 wherein creating the alternate path using the routing algorithm further includes creating the alternate path with the alternate path including the first line-protected link.

14. (original) The method of claim 13 further including:  
specifying that a first node associated with the start of the first line-protected link and a second node associated with the end of the first line-protected link are included in the alternate path.

15. (original) The method of claim 11 wherein the primary path is the shortest path between the start node and the destination node.

16-17. (cancelled)

18. (original) The method of claim 11 wherein the overall circuit path is a unidirectional path-switched ring.

19. (currently amended) A method for computing an overall circuit path within a network, the overall circuit path including a primary path segment and an alternate path segment, the primary path segment being defined from a start node to a destination node, the method comprising;

determining the primary path segment to include at least one line-protected link between the start node and the destination node; **[[and]]**

determining the alternate path segment to start at the start node and end at the destination node, wherein the alternate path segment is arranged to protect the primary path segment that includes the at least one line-protected link;

assigning a cost to the at least one line-protected link;

assigning costs associated to each link of a plurality of links included in a plurality of elements in the primary path, wherein the cost assigned to the at least one line-protected link is lower than the costs associated with each link of the plurality of links; and

considering costs associated with the plurality of links and the cost associated with the at least one line-protected link to create the alternate path.

20. (previously presented) The method of claim 19 wherein the alternate path segment includes the at least one line-protected link.

21. (original) The method of claim 19 wherein the overall circuit path is a unidirectional path-switched ring.

22. (previously presented) The method of claim 19 wherein the at least one line protected link is arranged between a first node and a second node, and wherein the alternate path segment is not switched through the first node or the second node.

23. (original) The method of claim 19 wherein the primary path segment is a lowest cost path segment between the start node and the destination node.

24. (currently amended) A system for computing an overall circuit path within a network, the overall circuit path including a primary path segment and an alternate path segment, the primary path segment being defined from a start node to a destination node, the system having at least one computer-readable medium storing computer-executable instructions and comprising;

a first set of computer-executable instructions determining the primary path segment to include at least one line-protected link from the start node to the destination node;

and a second set of computer-executable instructions determining the alternate path segment to start at the start node and end at the destination node, wherein the alternate path

segment is arranged to protect the primary path segment that includes the at least one line protected link,

wherein the second set of computer executable instructions include:

a first subset of computer-executable instructions assigning a cost to at least one line-protected link;

a second subset of computer-executable instruction assigning costs associated to each link of a plurality of links, wherein the cost assigned to the at least one line-protected link is lower than the costs associated with each link of the plurality of links; and

a third subset of computer-executable instruction considering costs associated with the plurality of links and the cost associated with the at least one line-protected link to determine the alternate path segment.

25. (previously presented) The system of claim 24 wherein the alternate path segment includes the at least one line-protected link.

26. (previously presented) The system of claim 24 wherein the overall circuit path is a unidirectional path-switched ring.

27. (previously presented) The system of claim 24 wherein the at least one line-protected link is arranged between a first node and a second node, and wherein the alternate path segment is not switched through the first node or the second node.

28. (currently amended) A system for computing circuit paths from a first node to a second node within a network, the network including a plurality of elements, the system including at least one computer-readable medium storing computer-executable instructions and comprising:

a first set of computer-executable instructions arranged to enable a determination to be made regarding whether at least one protected link selected from the plurality of elements may be included in a protectable segment of a primary circuit path;

a second set of computer-executable instructions arranged to create a primary circuit path from the first node to the second node which includes at least one protected link when it is determined to include at least one protected link in the protectable segment of the primary path, wherein the second set of computer-executable instructions is arranged to include the at least one protected link in the protectable segment of the primary circuit path;

a third set of computer-executable instructions arranged to create an alternate circuit path from the first node to the second node when it is determined to include the at least one protected link in the protectable segment of the primary path, wherein the alternate circuit path is arranged to protect at least the protectable segment of the primary circuit path;

a fourth set of computer-executable instructions arranged to create a primary circuit path between the first node and the second node which does not include at least one protected link when it is determined that at least one protected link may not be included in the protectable segment of the primary path; and

a fifth set of computer-executable instructions arranged to create an alternate circuit path between the first node and the second node, wherein the alternate circuit path is arranged to protect the primary circuit path.

29. (previously presented) The system as recited in claim 28 wherein the at least one protected link is a link with 1+1 protection.

30. (previously presented) The system as recited in claim 28 wherein the the third set of computer-executable instructions is arranged to create the alternate circuit path using the at least one protected link.

31. (cancelled)